



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Yung Yip; Alan R. Olson	Examiner:	Tanh Q. Nguyen
Serial No.:	10/047,280	Group Art Unit:	2182
Filed:	January 14, 2002	Docket No.:	10305US01
Title:	SYSTEM HAVING TAPE DRIVE EMULATOR AND DATA CARTRIDGE CARRYING A NON-TAPE STORAGE MEDIUM		

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We, Yung Yip and Alan R. Olson, declare as follows:

1. We are named inventors in above-referenced patent Application Serial No.10/047,280.
2. Each of us is an employee of Imation Corp., the assignee of record for the present application.
3. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the inventions set forth in claims 1-19 and 26-37 of this application prior to October 5, 2001, and worked diligently on constructive reduction of such inventions to practice from prior to October 5, 2001 to January 14, 2002, the filing date of this application.

Conception

4. Exhibit A, attached to this Declaration, is an Invention Record for Imation Corp. prepared prior to October 5, 2001.

5. Exhibit A and this Declaration provide evidence of our conception of the inventions set forth in claims 1-19 and 26-37 prior to October 5, 2001.

6. Claim 1 requires a system comprising a data cartridge carrying a non-tape storage medium, wherein the data cartridge includes read/write circuitry to access the non-tape storage medium and an external electrical connector coupled to the read/write circuitry. Claim 1 further requires a tape drive emulator having an electrical socket to receive the electrical connector of the data cartridge.

As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 1 prior to October 5, 2001. Figure 1 of Exhibit A illustrates an industry standard data cartridge housing that has been configured to contain an internal disk drive. On page 2, Exhibit A states that “the data storage element of an existing removable tape cartridge system is replaced with [an] alternative medium such as a rigid disk drive.” On page 2, Exhibit A further states that one benchmarked disk drive is a 40 GB IDS disk drive with a minimum sustained transfer rate of 20 MB/s. On page 2, Exhibit A states that “[t]he data cartridge would contain at least the complete mechanical components of the disk drive, including motor, disk(s), and head actuator assembly. Analog electronics such as preamps and write drivers should also be contained within the cartridge.” Figure 1 of Exhibit A illustrates the data cartridge having an electrical interface for coupling to a tape drive emulator.

On page 2, Exhibit A states that “[t]he tape drive portion of the system would be replaced with an electronic interface, power supply, and receptacle mechanism for seating and electrically connecting to the cartridge.” Figure 1 of Exhibit A illustrates the drive emulator having an electrical socket capable of receiving the data cartridge.

7. Claim 2 requires that the socket comprises a zero insertion force (ZIF) socket having a set of connectors that engage the electrical connections of the data cartridge. Claim 3 requires that the tape drive emulator includes a sensor to sense the insertion of the data cartridge, wherein the tape drive emulator mechanically actuates the ZIF socket upon sensing the insertion of the electrical interface of the data cartridge. Claim 4 requires that the socket includes a

mechanical actuation mechanism operable by a data cartridge library automation system to electrically couple the data cartridge to the emulation tape drive.

As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 2-4 prior to October 5, 2001. Exhibit A illustrates the tape drive emulator as having a zero insertion force (ZIF) connector. On page 3, Exhibit A states that “the drive emulator can contain some form of motorized Zero Insertion Force (ZIF) socket for making robust electrical connection to the cartridge I/O and power input (emphasis added).”

As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived at a time prior to October 5, 2001 that the tape drive emulator comprise a ZIF socket and a sensor to sense the insertion of the data cartridge and mechanically actuate the ZIF socket, as required by claim 3. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived at a time prior to October 5, 2001 that the socket includes a mechanical actuation mechanism operable by a data cartridge library automation system to electrically couple the data cartridge to the emulation tape drive, as required by claim 4

8. Claim 5 requires that the tape drive emulator comprises a host interface to electrically couple the tape drive emulator to a host computing device. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 5 prior to October 5, 2001.

Figure 1 of Exhibit A illustrates the drive emulator having an internal computer or application specific integrated circuit (ASIC) and a “Connection to Host.” On page 3, Exhibit A states that “[t]he drive emulator receives commands and data from the host application An example interface would be a SCSI host interface between host and emulator”

9. Claim 6 requires that the host interface conforms to one of the Small Computer System Interface (SCSI), the Fiber Channel interface, the Network Data Management Protocol (NDMP), and the Enhanced Integrated Drive Electronics / AT Attachment (EIDE/ATA) interface. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 6 prior to October 5, 2001.

Figure 1 of Exhibit A illustrates the drive emulator having an internal computer or application specific integrated circuit (ASIC) and a "Connection to Host." On page 3, Exhibit A states that "[t]he drive emulator receives commands and data from the host application An example interface would be a SCSI host interface between host and emulator" On page 3, Exhibit A further states that "[t]he drive emulator function can be executed by a single board computer like a PC1-4, with the appropriate interface adapters (SCSI, EIDE, ESCON, FIBRE). This can be accomplished with commercially off-the-shelf components."

10. Claim 7 requires that the tape drive emulator comprises a translation unit to translate commands between the host interface and the data cartridge interface. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 7 prior to October 5, 2001. On page 3, Exhibit A states that "[t]he drive emulator receives commands and data from the host application An example interface would be a SCSI host interface between host and emulator" On page 4, Exhibit A states that "[t]he drive emulator receives commands and data from the host application, interprets it [the commands and data] into disk drive interface format, and vice versa (emphasis added)."

11. Claim 8 requires that translation unit receives data stream commands from the host interface and translates the data stream commands into data block commands. Claim 9 requires that the translation unit comprises a data buffer for buffering the data stream commands. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claims 8 and 9 prior to October 5, 2001.

On page 3, Exhibit A states that "[t]he drive emulator receives commands and data from the host application An example interface would be a SCSI host interface between host and emulator" On page 4, Exhibit A states that "[t]he drive emulator receives commands and data from the host application, interprets it [the commands and data] into disk drive interface format, and vice versa."

12. Claim 10 requires that the non-tape storage medium comprises a disk-shaped storage medium. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 12.

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements.” Figure 1 of Exhibit A illustrates an industry standard data cartridge housing that has been configured to contain an internal disk drive. On page 2, Exhibit A states that “the data storage element of an existing removable tape cartridge system is replaced with [an] alternative medium such as a rigid disk drive.” On page 2, Exhibit A further states that one benchmarked disk drive is a 40 GB IDS disk drive with a minimum sustained transfer rate of 20 MB/s. On page 2, Exhibit A states that “[t]he data cartridge would contain at least the complete mechanical components of the disk drive, including motor, disk(s), and head actuator assembly. Analog electronics such as preamps and write drivers should also be contained within the cartridge.” Figure 1 of Exhibit A illustrates the data cartridge having an electrical interface for coupling to a tape drive emulator.

13. Claim 11 requires that the data cartridge includes a self-contained disk drive housing the disk-shaped storage medium and a disk driver controller. Claim 12 requires that data cartridge further comprises a disk drive controller to control access to the non-tape storage medium, wherein the controller communicates with the tape drive emulator according to one of the Small Computer System Interface (SCSI), the Fibre Channel interface, and the Enhanced Integrated Drive Electronics / AT Attachment (EIDE/ATA) interface.

As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 11 and 12 prior to October 5, 2001. Figure 1 of Exhibit A illustrates an industry standard data cartridge housing that has been configured to contain an internal disk drive. On page 2, Exhibit A states that “the data storage element of an existing removable tape cartridge system is replaced with [an] alternative medium such as a rigid disk drive.” On page 2, Exhibit A further states that one benchmarked disk drive is a 40 GB IDS disk drive with a minimum sustained transfer rate of 20 MB/s. On page 2, Exhibit A states that “[t]he data cartridge would contain at least the complete mechanical components of the disk drive,

including motor, disk(s), and head actuator assembly. Analog electronics such as preamps and write drivers should also be contained within the cartridge.” Finally, on page 2, Exhibit A states that “[a]ll of the disk drive electronics can be contained within the cartridge (emphasis added).”

14. Claim 13 requires that the socket of the tape drive emulator provides power to the controller of the data cartridge via the electrical connector of the data cartridge. Figure 1 of Exhibit A illustrates an industry standard data cartridge housing that has been configured to contain an internal disk drive. Figure 1 illustrates the data cartridge having an electric interface for coupling to a tape drive emulator. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived at a time prior to October 5, 2001 that the tape drive emulator provide power to the controller of the data cartridge via the electrical connector of the data cartridge, as required by claim 13.

15. Claim 14 requires an automation unit to selectively retrieve the data cartridge from a plurality of data cartridges conforming to industry standard dimensions for magnetic tape data cartridges.

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements.” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications.” On page 2, Exhibit A lists numerous existing tape library automation systems with which the tape drive emulator could be compatible, including automation systems supporting the 3590, 9840, 9940, SLR, DLT and LTO tape data cartridges. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived at a time prior to October 5, 2001 of an automation unit that selectively retrieves the data cartridge from a plurality of data cartridges conforming to industry standard dimensions for magnetic tape data cartridges, as required by in claim 14.

16. Claim 15 requires that the data cartridge comprise a housing conforming to industry standard dimensions for a magnetic tape drive cartridge. As evidenced by this

Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 15 prior to October 5, 2001.

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements.” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications.”

17. Claim 16 requires that the tape drive emulator has a form factor of an industry standard tape drive such that the location of the socket conforms to the location of a slot within the industry standard tape drive. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 16 prior to October 5, 2001.

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements (emphasis added).” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications (emphasis added).” On page 3, Exhibit A further states that the “data cartridge physical dimensions and features are compatible with existing library automation.”

18. Claim 17 requires that the tape drive emulator comprises a power connector and one or mounting holes, and further wherein the dimensions of the tape drive emulator, the location of the power connector, and the location of the mounting holes conform to the industry standard tape drive.

Figure 1 of Exhibit A illustrates a data cartridge having an electric interface for coupling to a tape drive emulator. Figure 1 of Exhibit A illustrates the drive emulator having an electrical socket capable of receiving the data cartridge. On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements (emphasis added).” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive

emulator which is compatible with existing tape drive formats, automation systems and host applications (emphasis added).” On page 2, Exhibit A lists numerous existing tape library automation systems with which the tape drive emulator could be compatible, including systems supporting the 3590, 9840, 9940, SLR, DLT and LTO tape data cartridges.

As evidenced by this Declaration and Exhibit A referenced by this Declaration, at a time prior to October 5, 2001, we conceived of the requirement that the tape drive emulator would be compatible with existing automation hosts, including the requirements that a power connector, mounting holes and dimensions of the tape drive emulator conform to an industry standard tape drive.

19. Claim 18 requires that in response to a query from a host computing device the tape drive emulator identifies itself as an industry standard tape drive. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 1.

Figure 1 of Exhibit A illustrates the drive emulator having an internal computer or application specific integrated circuit (ASIC). On page 2, Exhibit A states that “[t]he host application would see the drive emulator as a tape drive of the type that is being emulated (emphasis added).” On page 2, Exhibit A further states that “[t]his invention also provides a means to extend the format capacity and data transfer rate, without changes to the host application (emphasis added).”

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements (emphasis added).” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications (emphasis added).” On page 2, Exhibit A lists numerous existing tape library automation systems with which the tape drive emulator could be compatible, including systems supporting the 3590, 9840, 9940, SLR, DLT and LTO tape data cartridges.

At the time of the invention, it was standard procedure for conventional tape backup systems to respond to a query from a host computing device with identification information for

the tape drive. As evidenced by this Declaration and Exhibit A referenced by this Declaration, at a time prior to October 5, 2001 we conceived of the requirement that in response to a query from a host computing device the tape drive emulator identifies itself as an industry standard tape drive, as required by claim 18.

20. Claim 19 requires that the tape drive emulator determines the capacity of the non-tape storage medium within the data cartridge and communicates the capacity to a host computing device. As evidenced by this Declaration and Exhibit A referenced by this Declaration, we conceived the elements set forth in claim 1.

Figure 1 of Exhibit A illustrates the drive emulator having an internal computer or application specific integrated circuit (ASIC). On page 2, Exhibit A states that “[t]he host application would see the drive emulator as a tape drive of the type that is being emulated (emphasis added).” On page 2, Exhibit A further states that “[t]his invention also provides a means to extend the format capacity and data transfer rate, without changes to the host application (emphasis added).”

On page 1, Exhibit A states that “rapid access and high data rate data cartridge systems compatible with existing automation hosts can be achieved by replacing tape with disk drives or other forms of storage elements (emphasis added).” On page 2, Exhibit A states that “the invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications (emphasis added).” On page 2, Exhibit A lists numerous existing tape library automation systems with which the tape drive emulator could be compatible, including systems supporting the 3590, 9840, 9940, SLR, DLT and LTO tape data cartridges.

At the time of the invention, it was standard procedure for conventional tape backup systems to determine a capacity of the data cartridge and communicate the capacity to a host computing device. As evidenced by this Declaration and Exhibit A referenced by this Declaration, at a time prior to October 5, 2001 we conceived of the requirement that the tape drive emulator determine the capacity of the non-tape storage medium within the data cartridge and communicate the capacity to a host computing device, as required by claim 19.

21. Claims 26-37 are directed to a tape drive emulator having requirements similar to those discussed above. For at least the reasons set forth above, we conceived the inventions set forth in claim 26-37 prior to October 5, 2001, as evidenced by this Declaration and Exhibit A referenced by this Declaration.

Diligence

22. We continued to work with reasonable diligence on the inventions set forth in claims 1-19 and 26-37 during the three month period from prior to October 5, 2001 to at least January 14, 2002, the filing date of this application, i.e., the date of our constructive reduction to practice.

23. On October 9, 2001, Mr. Yip met with Mr. Kent J. Sieffert, Applicants' representative. During this meeting, Mr. Yip and Mr. Sieffert discussed the details of the invention. Exhibit B, attached to this Declaration, is a copy of an invoice that evidences the meeting between Mr. Kent J. Sieffert and Mr. Yip.

24. During the two month period from October 9, 2001 to December 10, 2001, we worked with Kent J. Sieffert with reasonable diligence to prepare a first draft for the present patent application. Exhibit C, attached to this Declaration, is a copy of an electronic communication prepared by Mr. Sieffert on December 10, 2001. As evidenced by this Declaration and Exhibit B, Mr. Sieffert prepared a draft of the present application during this period and communicated that draft to us on draft December 10, 2001. Any period between October 9, 2001 and December 10, 2001 during which the invention was not worked on was due to normal attorney workload associated with Mr. Sieffert's practice.

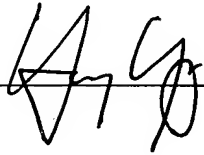
25. On December 12, 2001, Mr. Yip met and Mr. Kent J. Sieffert met to review the draft of the present application. Exhibit D, attached to this Declaration, is a copy of an invoice that evidences the meeting between Mr. Kent J. Sieffert and Mr. Yip on December 12, 2001.

26. During the one week period between December 12, 2001 and December 21, 2001, we worked with Mr. Sieffert with reasonable diligence to prepare a revised draft for the present

patent application. Exhibit E, attached to this Declaration, is a copy of an electronic communication prepared by Mr. Sieffert on December 21, 2001. As evidenced by this Declaration and Exhibit E, Kent J. Sieffert communicated the revised draft to us and Mr. Eric Levinson, patent counsel for Imation Corp., on December 21, 2001 for review. Any period between December 12, 2001 and December 21, 2001 during which the invention was not worked was due to normal attorney workload associated with Mr. Sieffert's practice.

27. As stated in Exhibit E, Mr. Sieffert sent Mr. Levinson drawings by regular mail on or about December 21, 2001. Mr. Levinson prepared and filed the present application on January 14, 2002, as evidenced by the filing date awarded the present application. Any period between December 21, 2001 and January 14, 2002 during which the invention was not worked on was due to holidays and normal attorney workload associated with Mr. Levinson's practice.

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 9/28/2004 Signed: 
Yung Yip

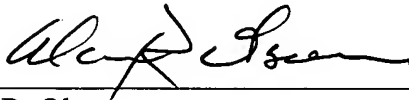
Date: 9/28/2004 Signed: 
Alan R. Olson



EXHIBIT A

Imation

Invention Record

I.I.R. # 2001-0094	Status: Recorded
Originating Imation Unit: Data Storage Systems	Send Original to I.P. Scientist/Manager: Robert W. Frits/CS/Imation
Title: Format Compatible Rapid Access Data Cartridge System with Extended Capacity	

Investigator Information:

Investigator Yung Yip	Imation Emp. Num. 684575
Tech. Ntbk. No. 250	Div. / Lab Name Data Storage Systems Lab
Investigator Alan R. Olson/DSP/Imation	Imation Emp. Num. 682008
Tech. Ntbk. No.	Div. / Lab Name Data Storage Systems Lab
Investigator	Imation Emp. Num.
Tech. Ntbk. No.	Div. / Lab Name

Include all of the following:

1. Short description of the invention:

Rapid access and high data rate data cartridge systems compatible with existing automation and hosts can be achieved by replacing tape with disk drives or other forms of storage elements.

2. Describe the utility of the invention and describe the advantages of this invention over the current art.

The convergence of unit storage cost between rigid disks and tape systems makes this concept an economically viable disruptive technology. It also provides users of library systems a new dimension for near line applications. This invention can also competes directly with optical jukebox applications.

3. Provide one or more detailed examples which illustrate the invention. Incorporate any needed sketches or informal drawing in the text of the I.I.R.

The Invention

This invention describes a rapid access data cartridge and drive emulator which is compatible with existing tape drive formats, automation systems and host applications. This invention also provides a means to extend the format capacity and data transfer rate, without changes to the host application. The concept is illustrated in figure 1.

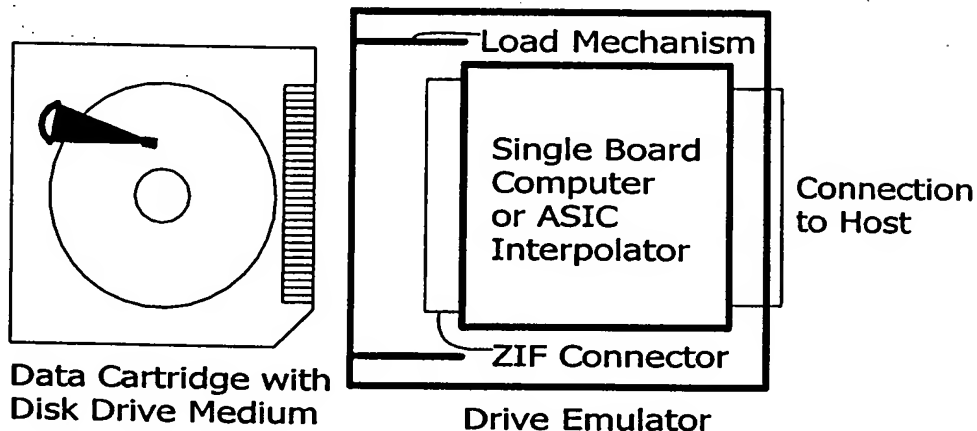


Figure 1

- ❖ The data storage element of an existing removable tape cartridge system is replaced with alternative medium such as a rigid disk drive.
 - The data cartridge physical dimensions and features are compatible with existing library automation.
 - Once the cartridge is loaded and powered up, time to data will be measured in milliseconds.
 - Current benchmark (8/2001) for single platter IDE disk drives is 40 GB, with a minimum of 20 MB/s sustained transfer rate, and approximately \$50 OEM pricing.
- ❖ The tape drive portion of the system would be replaced with an electronic interface, power supply, and receptacle mechanism for seating and electrically connecting to the cartridge. This device will herein be referred to as the "drive emulator".
 - The host application would see the drive emulator as a tape drive of the type that is being emulated.
 - Migration to larger capacity and higher data rates by upgrading the disk drive mechanism, and does not necessarily require a change in drive emulator hardware or host application drivers
 - Examples of systems where this can be implemented are 3590, 9840, 9940, SLR, DLT, and LTO.
- ❖ The data cartridge would contain at least the complete mechanical components of the disk drive, including motor, disk(s), and head actuator assembly. Analog electronics such as preamps and write drivers should also be contained within the cartridge.
- ❖ All of the disk drive electronics can be contained within the cartridge.

- The advantage of embedding all the disk drive electronics within the cartridge is the ability to use an industry standard interface (such as SCSI or IDE), without proprietary content.
- This minimizes customization, and eases migration to larger capacity drives.
- The disadvantage of embedding all the disk drive electronics into the cartridge is added weight, potentially higher cost, and lack of proprietary content.
- ❖ A portion of the disk drive electronics can reside on the drive emulator.
 - In high volume scenarios, this is approach can reduce cost to the cartridge.
 - The disadvantage of this approach is a high degree of customization, restrictions on product migration, and limitations on disk drive suppliers.
- ❖ The drive emulator can contain some form of motorized Zero Insertion Force (ZIF) socket for making robust electrical connection to the cartridge I/O and power input.
- ❖ The drive emulator receives commands and data from the host application, interprets it into the disk drive interface format, and vise versa. An example would be a SCSI host interface between host and emulator, and an EIDE interface between the emulator and cartridge disk drive.
 - The drive emulator function can be executed by a single board computer like a PC104, with the appropriate interface adapters (SCSI, EIDE, ESCON, FIBRE). This can be accomplished with commercially off-the-shelf components.
 - The same functionality with higher speed and lower cost can be achieved via custom ASIC.
- ❖ Storage elements other than disk drives can also be used (ie. Flash memory).



EXHIBIT B

Shumaker & Sieffert, P.A.
8425 Seasons Parkway, Suite 105
St. Paul, MN 55125

Invoice

Date:	No.
10/31/2001	929

ATTN: Eric D. Levinson
Imation Corp. P.O. Box 64898 St. Paul, MN 55164-0898

TERMS	DUE DATE	YOUR REFERENCE NO	SS MATTER NO
Net 30	11/30/2001	10305	1001-203US01

DESCRIPTION	HRS/QTY	RATE	TIMEKEEPER	SERVICED	AMOUNT
Review invention disclosure statement.	1.1	285.00	KJS	9/26/2001	
Photocopies / Prints	1	0.20		10/1/2001	
Prepare for and conduct invention disclosure interview.	2.1	285.00	KJS	10/9/2001	
				Total	

Tax ID:41-1988229

Shumaker & Sieffert contact:

Kent J. Sieffert

EXHIBIT C

Kent J. Sieffert

From: Kent J. Sieffert
Sent: Monday, December 10, 2001 3:46 PM
To: 'edlevinson@imation.com'; 'yyip@imation.com'
Subject: Patent Application - Imation 10301US01-Tape Emulation

Yung, attached is a first draft for the above-referenced patent application. Specifically, I have attached the specification in password-protected Microsoft Word format, and figures in password-protected PDF format. I'll call you with the password.

Please review the patent application for completeness and accuracy. Please contact me with comments or suggestions.

Regards,

Kent J. Sieffert
Shumaker & Sieffert, P.A.
150 Gateway Corporate Center I
576 Bielenberg Drive
St Paul, MN 55125
tel 651-735-1100 ext. 11
fax 651-735-1102
email: sieffert@ssiplaw.com
web:www.ssiplaw.com



Application - first draft.doc ... Figures.pdf (40 KB)



EXHIBIT D

Shumaker & Sieffert, P.A.

**8425 Seasons Parkway, Suite 105
St. Paul, MN 55125**

Invoice

Date:	No.
12/31/2001	1286

ATTN: Eric D. Levinson
Imation Corp. P.O. Box 64898 St. Paul, MN 55164-0898

TERMS	DUE DATE	YOUR REFERENCE NO	SS MATTER NO
Net 30	1/30/2002	10305	1001-203US01

DESCRIPTION	HRS/QTY	RATE	TIMEKEEPER	SERVICED	AMOUNT
Work on application.	8.5	285.00	KJS	12/5/2001	
Work on application.	5	285.00	KJS	12/6/2001	
Work on application.	0.17	285.00	KJS	12/7/2001	
Review and revise application.	1.2	310.00	SJS	12/10/2001	
Meet with Mr. Yip to review first draft of application.	2.1	285.00	KJS	12/14/2001	
Revise application.	0.7	285.00	KJS	12/18/2001	
Revise application.	3.5	285.00	KJS	12/19/2001	
Photocopies / Prints	1	0.95		12/6/2001	
			Total		

Tax ID:41-1988229

Shumaker & Sieffert contact:

Kent J. Sieffert

EXHIBIT E

Kent J. Sieffert

From: Kent J. Sieffert
Sent: Friday, December 21, 2001 2:04 PM
To: 'edlevinson@imation.com'
Cc: 'yyip@imation.com'; Kent J. Sieffert; 'sjdaly@imation.com'; Shirley A. Betlach
Subject: RE: Patent Application - Imation 10305US01-Tape Emulation



Application - Figures.pdf (40 KB)
Final.doc (80 KB...

Eric,

Attached is a final draft for the above-captioned patent application. In particular, I have attached a password protected Word file and a password-protected PDF of the figures. In addition, I am mailing you copies of the figures for filing as the PDF has dropped some markings.

Please let me know if I can be of further assistance.

Happy Holidays,

Kent